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DEVELOPMENT OF TRANSPORT NETWORK IN NORTHERN KAZAKH SSR

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The February-March and August 1955 Plenums of the Central Committee of the CPSU called for great increases in the future production of grain in the USSR.

In the Kazakh SSR, the greatest portion of grain will be produced in the northern oblasts, namely Severo-Kazakhstanskaya, Kustanayskaya, Kokchetavskaya, Akmolinskaya, and Pavlodarskaya. Despite the fact that these oblasts account for only 22 percent of the total area of Kazakh SSR, they contain almost 60 percent of the virgin and fallow lands to be cultivated in the republic. In 1956, these oblasts will yield more than 10 million tons of commercial grain, five times the yield of 1953.

This colossal expansion in grain production will greatly increase the freight turnover of the oblasts and thus necessitate expansion and improvement of the transport network.

Existing rail lines connect the oblasts of northern Kazakh SSR with the Ural Mountains via the Siberian main line, via the Kustanay-Troitsk branch line, and via the Akmolinsk-Kartaly line. The Akmolinsk-Pavlodar line provides connection with Western Siberia and Altayskiy Kray. The Trans-Kazakh rail line connects the northern oblasts with rayons in Central and Southern Kazakhstan and with the republics of Central Asia.

Despite the existence of the above-mentioned rail lines, northern Kazakh SSR is presently characterized by a considerably lower density of rail lines than other grain-producing regions of the USSR. For every 100 square kilometers of territory in the Kustanayskaya, Akmolinskaya, Severo-Kazakhstanskaya, Kokchetavskaya, and Pavlodarskaya oblasts taken together, there is on the average only about 0.4 kilometer of rail line, while in the main grain-producing regions of the North Caucasus there are 1.45 kilometers, in the Central Volga River area 1.65 kilometers, and in the south of the Ukrainian SSR 2.2 kilometers.

At present, 1,710 kilometers of narrow-gauge rail lines are being built in the virgin and fallow land area between the upper Tobol River and the Irtysh River. When these lines are put into service, the rail line density of Northern Kazakhstan per 100 square kilometers of territory will be 0.7 kilometer, an increase of 75 percent. The volume and the economic importance of the work undertaken are equivalent to the building of the largest transportation facilities in the Kazakh SSR.

The construction of the narrow-gauge rail lines must be performed simultaneously in nine directions. The area to be served by these lines amounts to approximately 18.5 million hectares. In the beginning of 1954, a little over 40 sovkhozes were located in this area; by the time the rail construction project is completed, there will be over 200 sovkhozes.

These new rail lines will make possible the future development not only of agriculture but also of industry, especially the food industry. The chief freight exported from the region will be grain. The freight coming into the area will consist of various construction materials, fuel, spare parts, plus all the necessities for the new settlements, from consumer goods to prefabricated housing.

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To receive the best results from the work of the transportation network it is necessary that all types of transport be coordinated. Hence, along with the construction of the narrow-gauge rail lines, much attention is being given to the construction of motor roads and small river navigation.

At present the condition of the roads is very poor. The highways of republic and union significance are in somewhat better condition. They have been profiled and in places improved with sand and gravel, but during the spring thaw the improvements disappear and each year the work has to be repeated.

Local roads are ordinarily dirt roads which do not have a permanent alignment and change direction depending upon the time of the year.

According to a decision of the Council of Ministers USSR, during the 1955-1957 period 1,340 kilometers of hard-surface motor roads are to be built, including 460 kilometers of union highways, in the virgin and fallow land areas of the northern oblasts of the Kazakh SSR.

The narrow-gauge rail lines and motor roads will serve 61 percent of the sovkhozes, 50.2 percent of the kolkhozes, 48 percent of the MTS, and 55 percent of the procurement points located in the Kustanayskaya, Severo-Kazakhstanskaya, Kokchetavskaya, and Akmolinskaya oblasts. These rail lines and roads will handle up to 54.0 percent of the over-all freight turnover of northern Kazakh SSR (excluding Pavlodarskaya Oblast).

At present, the chief aim is the proper distribution of the new transport construction. This is the end to which the North Kazakh Detachment (otryad) of the Complex Transport Expedition of the Academy of Sciences USSR and the Institute of Economics of the Academy of Sciences Kazakh SSR was devoted in the detailed technical-economic investigations conducted from June through September [1955?] in the virgin and fallow land areas of northern Kazakh SSR.

#### Determination of Freight Turnover and Freight Flows

The first stage of the technical-economic investigations of the Complex Transport Expedition was the study of productive forces to show the distribution of agricultural production and industry in the oblasts under investigation, in determining the zones to be served by either the main line or local transport routes, and in determining the economic relations between oblasts and rayons. To facilitate the work, the study of productive forces was conducted by oblasts.

The economic investigation in each oblast was conducted in stages. The first stage was the collection of materials in the oblast organizations from which general, preliminary transport characteristics of the oblast were drafted and rayons for more detailed investigation and re-examination were selected.

The collection of materials in this period was carried on at the oblast and rayon centers of Petropavlovskaya, Kokchetavskaya, Kustanayskaya, and Pavlodarskaya oblasts.

The material gathered helped to determine the following:

1. The extent of the territory and the population per oblast, rayon, and administrative center.
2. The distribution of union, republic, oblast, and local industry, the capacity of various industrial enterprises as regards raw materials and finished products, and the presence of mineral resources of industrial significance.

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3. The geographic distribution of agricultural production; the specialization of agriculture, the distribution of sovkhoses, kolkhozes, and MTS, sown areas, the average yielding capacity, and the gross and commercial yield of grain; the location of livestock and its marketability; the yield of commercial products according to various sovkhoses and kolkhozes; the development of new lands in oblasts and rayons and the location of new sovkhoses and MTS.
4. The location of grain procurement points and elevators, and their capacity; the rayons served by the grain procurement points.
5. The location of bases of the trade network, their volume of work, and the routing and volume of consumer goods hauling.
6. The distribution of petroleum bases, their capacity, and the routing and volume of fuel and lubricant shipments.
7. The distribution of construction organizations (Construction and Installation Administrations, Construction Trusts), and the routing and volume of construction materials shipments.
8. Railroad stations and wharves for the bulk loading of grain, and the regions served by various railroad stations and wharves.
9. The development of industry and agriculture in the 1955-1957 period.

On the basis of the material gathered, the composition and preliminary volume of the freight turnover was determined for rayons, the motor-road network, the narrow-gauge rail lines, and the Ishim River; and a schematic transport network of the oblast was prepared and then checked in the rayons being studied.

The second stage of work involved detailed economic investigation of the rayons. As a rule, a rayon was chosen which was important in the production of grain and characterized by a completeness of production and transportation within the rayon. Since the scheme of freight flows was considered as a main object of the economic investigation the limits of the region under examination always coincided with the limits of a zone accessible to local and main line transport.

The criterion for assigning a freight-originating or a freight-receiving point to a particular zone was the shortest freight hauling distance by motor transport to the railroad station and finally the cost of delivery of one ton of freight to or from a station on a standard-gauge [5-feet] rail line.

In establishing the zones to be served by various transport lines in the future the different variants of constructing motor roads were analyzed with consideration given to the construction of narrow-gauge rail lines. A comparison was made of the capital expenditure and the periods within which the various routes would pay for themselves.

In studying the rayons the material gathered in the oblast center was broken down and checked, the accuracy of the calculations concerning freight turnover and freight flows of the local transport network was checked, and additional material was gathered concerning the rationalization of hauling grain and grain products, construction materials, consumer goods, etc., within the rayon and to or from other rayons.

For this reason a study was made of individual sovkhoses, kolkhozes, MTS, procurement points, elevators, industrial enterprises, and transshipment bases. The investigation of rayons was conducted jointly with the motor transport people in order to take into consideration the technical-operating factors.

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The third stage of the work consisted of analyzing all the material gathered and composing freight turnover and freight flow charts for 1955 and 1957. In calculating the freight turnover of rayons and individual transport lines, freight was divided into the seven following categories:

1. Industrial freight -- agricultural machinery, spare parts, equipment, machinery, instruments, etc.
2. Grain
3. Other agricultural freight -- vegetables, milk, meat, eggs, and products destined for local industrial enterprises
4. Consumer goods -- foodstuffs and industrial consumer goods
5. Construction materials -- stone, sand, cement, bricks, structural timber, prefabricated parts for housing, steel, glass, etc.
6. Liquid bulk and fuel -- liquid fuel, lubricants, and coal
7. Other freight -- mineral fertilizer, etc.

The norms for the categories of freight used for calculating the freight turnover of the oblast and the rayon and the freight density of the transport lines were supplied by the departmental organizations and approved by republic and union ministries.

The results of the work of the expedition regarding the calculations of freight turnover and freight density, and the transport network proposed for construction, were discussed in the oblast planning organs, oblast executive committees, in the Presidium of the Academy of Sciences of the Kazakh SSR, and at an Interdepartmental Conference in Moscow.

Economic investigations over the entire oblast, and not just over certain routings, made possible the determination of the most rational routings of the transport connections.

#### The Transport Network

In 1957, northern Kazakh SSR must handle a freight turnover four times that of 1954. The breakdown according to freight categories is as follows: industrial freight, 3.5 percent; grain, 53.1 percent; other agricultural freight, 0.8 percent; consumer goods, 4 percent; construction materials, 22.4 percent; liquid freight, 6.3 percent; and other freight, 9.9 percent.

Thus, the major part of the freight turnover (76.3 percent) is taken up by agricultural freight and construction materials, and only 23.7 percent falls to the remaining four categories.

The apportionment of the over-all freight turnover of northern Kazakh SSR among the oblasts is as follows: Kustanayskaya Oblast, 39.8 percent; Kokchetavskaya Oblast, 28.1 percent; Akmolinskaya Oblast, 24.2 percent; and Severo-Kazakhstanskaya Oblast, 7.9 percent.

After considering these factors, the expedition drafted concrete proposals for the future development of the transport network of Kustanayskaya, Severo-Kazakhstanskaya, Kokchetavskaya, and Akmolinskaya oblasts. In preparing proposals for the construction of transport routes the expedition sought to provide the maximum transport service, while keeping construction costs and the extension of the transport network at a minimum.

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An analysis of the material gathered by the expedition, the calculations concerning the freight turnover and freight density of the main network of transport lines first of all showed the expediency of constructing the standard-gauge [5 feet] Kustanay--Kokchetav--Kzyl-Tu--Kaymanachikha rail line. The freight density of this rail line for 1957, broken down into sections of the line, is planned as follows:

Freight Density (1,000 ton-km).

| Section                    | Length<br>(km) | Both<br>Directions | One<br>Direction |       | Return<br>Direction |       | Ton-Km<br>per Km<br>(millions) |
|----------------------------|----------------|--------------------|------------------|-------|---------------------|-------|--------------------------------|
|                            |                |                    | Total            | Grain | Total               | Grain |                                |
| Kustanay-<br>Uritskoye     | 129            | 6,394              | 2,058            | --    | 4,336               | 4,273 | 825.0                          |
| Uritskoye-Peski            | 124            | 5,700              | 1,896            | --    | 3,804               | 3,746 | 707.0                          |
| Peski-Volodarskoye         | 80             | 4,331              | 1,455            | --    | 2,876               | 2,737 | 346.0                          |
| Volodarskoye-<br>Kokchetav | 89             | 3,963              | 1,342            | --    | 2,621               | 2,470 | 352.0                          |
| Kokchetav-<br>Chkalovo     | 80             | 2,418              | 1,011            | --    | 1,470               | 1,384 | 193.5                          |
| Chkalovo--<br>Kzyl-Tu      | 123            | 2,107              | 893              | --    | 1,214               | 1,210 | 260.0                          |
| Kzyl-Tu--<br>Kaymanachikha | 69             | 1,575              | 605              | --    | 970                 | 969   | 108.5                          |
| Total                      | 694            |                    |                  |       |                     |       | 2,792.0                        |

The number of kolkhozes, sovkhoses, MTS, and grain procurement points in each oblast to be served by the rail line is shown below:

| Oblast                 | No of<br>Kolkhozes | No of<br>Sovkhoses | No of<br>MTS | No of Grain<br>Procurement Points |
|------------------------|--------------------|--------------------|--------------|-----------------------------------|
| Kokchetavskaya         | 169                | 40                 | 19           | 53                                |
| Kustanayskaya          | 88                 | 22                 | 13           | 18                                |
| Severo-Kazakhstanskaya | 26                 | 11                 | 7            | 11                                |
| Pavlodarskaya          | 6                  | 17                 | 16           | 2                                 |

The region served by the line will grow considerably -- the new main line will be occupied with the hauling of grain, going over the Akmolinsk-Kokchetav section of the Trans-Kazakhstan rail line, and will considerably relieve the Akmolinsk-Kartaly section, Karaganda Railroad System, the freight density of which is increasing from year to year. The freight density of this section was 1.8 times the average freight density of the entire railroad network in 1953 and 2.6 times in 1954, and will be more than 4.2 times in 1960.

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Moreover, by passing through the rayons farthest removed from the main rail lines, the Kustanay--Kokchetav--Kzyl-Tu--Kaymanachikha rail line will greatly shorten the length of haul for grain, compared with the haul required by motor transport and via narrow-gauge rail lines to the existing standard-gauge [5 feet] rail lines. It will accelerate the export of grain from Northern Kazakh SSR to the grain-consuming regions of the country.

The network of narrow-gauge rail lines and motor roads will not change in the meantime. The only changes will be in the freight flows, which will increase on the approaches to the Kustanay--Kokchetav--Kzyl-Tu--Kaymanachikha rail line.

A total of nearly 2,000 kilometers of rail line and a little more than 3,000 kilometers of motor roads must be built. This does not include the construction of motor roads of less than 70,000 to 100,000 of freight turnover tons per year.

The completely new routes proposed by the expedition are as follows:

1. Siding 77-Sovkhoz Rostovskiy
2. Shortandy-Sovkhoz Izobil'nyy
3. Dzhaksy-Ruzayevka
4. Atbasar-Balkashino
5. Kokchetav-Yelenovka
6. Makinsk-Kolkhoz imeni Kaganovicha
7. Novo-Pokrovka--Kiyaly
8. Tayncha-Letovochnoye
9. Ken'-Aral'skiy--Dzharkul'
10. Novo-Pokrovka--Volodarskoye
11. Tayncha--Chkalovo--Kzyl-Tu (railroad station)--Kokchetav
12. Shchuchinsk-Nikolayevka
13. Akmolinsk-Kurgal'dzhino
14. Tyuntyugur-Sovkhoz imeni Panfilova
15. Petropavlovsk-Krasnoyarsk
16. Astrakhan-Sovkhoz Krasnogvardeyskiy

Future changes may be made, in the final designing stage, in these plans; some of the more heavily burdened motor roads may be changed to narrow-gauge rail lines.

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As a result of the completed construction of the above-mentioned transport lines, the average length of haul for one ton of freight will be as follows (in kilometers):

| <u>Oblast</u>                            | <u>Via Narrow-Gauge<br/>Rail Line</u> | <u>Via Motor Road</u> |
|------------------------------------------|---------------------------------------|-----------------------|
| Akmolinskaya                             | 179.2                                 | 63.7                  |
| Kustanayskaya                            | 139.5                                 | 65.0                  |
| Kokchetavskaya                           | 69.5                                  | 65.3                  |
| Severo-Kazakhstanskaya                   | 75.0                                  | 76.2                  |
| Total average for<br>northern Kazakh SSR | 99.5                                  | 64.5                  |

At present, the average length of haul for one ton of freight via narrow-gauge rail lines is 80 kilometers and via motor roads, 10 kilometers.

The following transport lines are included in the main transport network of the territory investigated:

The narrow-gauge Atbasar-Sovkhoz Pobeda-Peski-Kurgan rail line will pass through all of the four oblasts. It will provide for hauling of grain of Ruzayevskiy and Aryk-Balykskiy rayons of Kokchetavskaya Oblast to the South Siberia main line and to the Kustanay--Kokchetav--Kzyl-Tu--Kaymanachikha rail line, and grain of Presnogor'kovskiy Rayon, Kustanayskaya Oblast, to Kurgan Station.

The narrow-gauge Yesil' (Siding 77)-Sovkhoz imeni Lomonosova-Uritskoye rail line will serve the new sovkhoses of Yesil'skiy (Akmolinskaya Oblast), Ruzayevskiy (Kokchetavskaya Oblast), and Uritskiy (Kustanayskaya Oblast) rayons located on the left bank of the Ishim River. In Akmolinskaya Oblast the narrow-gauge rail line will pass only through two sovkhoses -- Zhanyspayskiy and Dal'-nyanskiy. The major grain freight flow will be formed in the Ruzayevskiy rayon. Most of the grain from the Ruzayevskiy rayon will go to Siding 77, and the remainder to Uritskoye Station.

The narrow-gauge Atbasar-Sovkhoz Krasnoznamenskiy rail line will serve the sovkhoses of Yesil'skiy, Atbasarskiy, and Kurgaldzhinskiy rayons, Akmolinskaya Oblast. It will have one of the greatest freight densities of all the narrow-gauge rail lines in Northern Kazakh SSR.

The Bulayevo-Sovkhoz imeni Malenkova rail line will serve the new sovkhoses, kolkhoses, and MTS of the Bulayevskiy rayon, Severo-Kazakhstanskaya Oblast, and also the sovkhoses of Krasnoarmeyskiy, Kzyl-Tuskiy, and Chkalovskiy rayons, Kokchetavskaya Oblast. According to a resolution of the Council of Ministers USSR the construction of this line is planned only to the Sovkhoz imeni Malenkova. This will isolate the line from the rest of the network of narrow-gauge lines. In our [the authors'] opinion the narrow-gauge rail line from Bulayevo to the Sovkhoz imeni Malenkova should be extended to the Kokchetav--Kzyl-Tu--Kaymanachikha rail line. This would facilitate switching operations, and would make it possible to route over the line construction materials (stone from the Dautskiy deposits) needed in Severo-Kazakhstanskaya Oblast.

The narrow-gauge Siding 77--Sovkhoz Derzhavinskiy--Sovkhoz Rostovskiy rail line will serve 23 new grain sovkhoses of Yesil'skiy Rayon, Akmolinskaya Oblast, which will provide nearly 400,000 tons of commercial grain. This will be the most heavily traveled of all the narrow-gauge rail lines proposed for construction. On the approaches to Siding 77 the freight density of the line will reach 820,000 tons. Such a load can be handled by a narrow-gauge rail line.



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The Shortandy-Sovkhoz Izobil'nyy motor road will provide a connection between the sovkhozes, kolkhozes, and MTS of Shortandinskiy, Stalinskiy, and Yerkenshilikskiy rayons, Akmolinskaya Oblast, and also with the enterprises of the gold industry in Bestyube and Zholyambet with the Akmolinsk-Petropavlovsk rail line. Since the Shortandy-Sovkhoz Izobil'nyy motor route is so long -- 241 kilometers -- it may be constructed in two stages. The first stage should include the section from Shortandy to Sovkhoz Minskiy, where the freight density fluctuates from 342,000 tons to 150,000 tons, and the second stage should cover the construction of the Sovkhoz Minskiy-Bestyube-Sovkhoz Izobil'nyy section, having a minimum freight density of 43,000 tons.

The Dzhaksky Station-Sovkhoz Zharkul'skiy-Ruzayevka motor road is proposed in place of the Dzhaksky Station-Takhtabrod route planned according to a resolution of the Council of Ministers USSR.

The Dzhaksky Station-Sovkhoz Zharkul'skiy-Ruzayevka motor road will pass 70-75 kilometers from the projected Atbasar-Sovkhoz Pobeda-Peski narrow-gauge rail line and will serve a large region, including the new Sovkhozes Entuziast, Yaroslavskiy, Kalininskiy, Lyubimovskiy, and Kirvoskiy in Akmolinskaya Oblast, and Sovkhozes Sheptykul'skiy, Zhdanovskiy, Zharkul'skiy, and Borovskoy in Kokchetavskaya Oblast. In addition, the extension of the road from Borovskoy sovkhoz to the rayon center of Ruzayevka will provide interoblast connection between Severo-Kazakhstanskaya, Kokchetavskaya, and Akmolinskaya oblasts.

The most heavily traveled section on the road will be the Dzhaksky Station-Sovkhoz Yaroslavskiy section and the least traveled will be the Sovkhoz Borovskoy-Ruzayevka section.

The region served by the Dzhaksky Station-Takhtabrod motor road will be almost half as large. It will include the Entuziast, Kirovskiy, and Kalininskiy sovkhozes, Akmolinskaya Oblast. Within the Kokchetavskaya Oblast the Dzhaksky-Takhtabrod motor road will pass close to the Atbasar-Peski narrow-gauge rail line which takes care of the major portion of freight from this region.

The Atbasar-Balkashino motor road is not considered just an extension of the Kokchetav-Balkashino road proposed for construction by the Council of Ministers USSR. It will undoubtedly play a large role in interoblast connection between the Kokchetavskaya and Akmolinskaya oblasts. Its chief significance will be to provide for uninterrupted connection with the South Siberia main rail line passing through Molotovskiy Rayon, which occupies third place in the production of grain among the rayons in Akmolinskaya Oblast.

The Kokchetav-Yelenovka road is necessary for an approach from the Aryk-Balyskiy motor road to the city of Kokchetav, the oblast center. Over this road more than 100,000 tons of grain will be transported to Kokchetav. Considering that grain comprises up to 50 percent of the over-all freight turnover of the road, the freight traffic on the Aryk-Balyskiy road and the Yelenovka-Kokchetav section will be sufficient to justify its construction. Freight density in the Yelenovka region will reach 200,000 tons and on the approaches to Kokchetav, 234,000 tons.

The Siding 63-Zhail'ma motor road will provide an exit from Ordzhonikidzevskiy Rayon, Kustanayskaya Oblast, to the Siding 63 (Kocherzhinovka) railroad station. The road will serve 16 sovkhozes, most of which are newly organized. The greatest freight density on the system will be on the approach to Denisovka. From Denisovka the road will fork and proceed in two directions: Denisovka-Siding 63, and Denisovka-Tobol. Both of these routes will have a freight density of more than 250,000 tons at the approaches to the rail line.

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The Makinsk-Kolkhoz imeni Kaganovicha motor road will be the first well constructed road in Enbekshil'derskiy Rayon, Kokchetavskaya Oblast. It will pass through the rayon center of Kazgorodok and will serve six sovkhozes (four of which are new).

The Astrakhanka-Makinsk road will provide an exit to the Petropavlovsk-Akmolinsk-Karaganda and Kartaly-Akmolinsk main rail lines. Grain will be exported from the region to Makinsk Station and Dzhaltyr Station. Novo-Donetskoye Station will be the division point between the freight flows.

As a second stage, and as an extension of the Astrakhan-Makinsk motor road, the expedition proposed the construction of the Astrakhanka-Sovkhoz Krasnogvardeyskiy route. This road is considered as a grain hauling road providing an outlet for the produce of new sovkhozes of Novo-Cherkasskiy Rayon, Akmolinskaya Oblast, and to the railroad station of Dzhaltyr.

The Stavropolka-Mar'yevka-Petropavlovsk motor road, because of the existence of the narrow-gauge Yesil' (Siding 77)-Sovkhoz Lomonosova-Uritskoye and Atbasar-Peski-Kurgan rail lines, will not have a heavy freight density as far as Yavlenka. The maximum freight density of the road -- nearly 263,000 tons -- will occur only on the approaches to Petropavlovsk and the minimum freight density on the road will be only 13,000 tons. By passing mainly along the Ishim River the Stavropolka-Mar'yevka-Petropavlovsk road will serve the kolkhozes, sovkhozes, and MTS of Ruzayevskiy Rayon, Kokchetavskaya Oblast, and of Oktyabr'skiy, Leninskiy, and Priishimskiy rayons, Severo-Kazakhstanskaya Oblast.

The Kaybagar-Karasy-Sovkhoz Sevastopol'skiy motor road will serve the kolkhozes, sovkhozes, MTS, and procurement points of Karasuyskiy Rayon, Kustanayskaya Oblast. It will provide a connection between the rayon and Kaybagar Station (South Siberia main line) and with the Yesil' (Siding 77)-Uritskoye narrow-gauge rail line. The greatest freight density of the road -- over 200,000 tons -- will be observed on the approaches to Kaybagar Station, and the smallest freight density -- nearly 93,000 tons -- will be on the approaches to the narrow-gauge rail line.

The Novo-Pokrovka--Kiyaly road is proposed despite existing opinion that it is necessary to build a motor road between Kiyaly and Yavlenka.

The Kiyaly-Yavlenka road will pass far from the main kolkhoz region of Severo-Kazakhstanskaya Oblast, which is located northwest of Balyktykol'skoye Ozero (Lake) and the grain growing northern part of Kellerovskiy Rayon, Kokchetavskaya Oblast, which suffer from lack of roads. In connection with this, the greatest effect will be achieved by the construction of the Kiyaly--Bogodukhovka--Novo-Pokrovka road, which will pass directly through these regions.

Another motor road, from Novo-Pokrovka to Volodarskoye, will stretch from the Kiyaly--Novo-Pokrovka motor road towards the Kustanay-Kokchetav rail line. It will chiefly serve the agricultural enterprises of Airtavskiy Rayon, Kokchetavskaya Oblast, and a small portion of Oktyabr'skiy Rayon to the south of Novo-Pokrovka, Severo-Kazakhstanskaya Oblast.

The Tayncha-Letovochnoye motor road will pass through Kellerovka Station, the Kellerovskiy Rayon center in Kokchetavskaya Oblast. It will provide an outlet for the grain of the Kellerovskiy and Krasnoarmeyskiy rayons to Tayncha railroad station. In 1957, 100,000 tons of grain will be exported over this road to Tayncha Station.

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The Tayncha--Chkalovo--Kokchetav--Kzyl-Tu motor road will serve as a natural extension of the Tayncha-Letovochnoye motor road. The Tayncha--Chkalovo--Kokchetav (railroad station)--Kzyl-Tu motor road will serve the Chkalovskiy and Krasnoarmeyskiy rayons, Kokchetavskaya Oblast. It will provide an outlet for grain to Tayncha Station (up to 76,000 tons) and to the Kokchetav--Kzyl-Tu rail line (62,000 tons).

The Ken'-Aral'skiy--Dzharkul' motor road will pass through Fedorovskiy Rayon, Kustanayskaya Oblast. It will provide a connection for 4 large grain sovkhozes, an MTS, 6 kolkhozes, and 5 procurement points with Dzharkul' railroad station. In the future, two more sovkhozes are to be organized in the region served by the road.

The maximum freight density of the road will be on the approaches to Dzharkul' Station and will amount to nearly 200,000 tons in 1957.

The Tyuntyugur-Sovkhoz imeni Panfilova motor road is an entirely new route in the road network of Kustanayskaya Oblast. The necessity for its construction is connected with the emergence of new sovkhozes in the Semiozernyy and Amangel'dinskiy rayons.

The freight density of the road on the approaches to Tyuntyugur Station will reach 150,000-200,000 tons, in connection with the cultivation of all the virgin land adjoining it and the organization of two to five new sovkhozes.

The Dzhetysay-Bredy motor road will serve the Dzhetysayinskiy rayon, Kustanayskaya Oblast. The region connected to the road will include 6 sovkhozes, one MTS, 7 kolkhozes, and 6 remote procurement points. In addition, the Dzhetysay gold enterprises will be included in the area to be served by the road. The maximum freight density of the road will be 150,000 tons.

The Kustanay-Vvedenka motor road will provide a connection between Vvedenskiy Rayon, Kustanayskaya Oblast, and the oblast center of Kustanay. Part of Kustanayskiy Rayon will be included in the zone served by the road. The maximum freight density on the approaches to Kustanay will amount to nearly 180,000 tons and the minimum freight density will reach 100,000 tons.

The Akmolinsk-Nurinsk road within Akmolinskaya Oblast will pass through Akmolinskiy Rayon. The agricultural enterprises of Kurgal'dzhinskiy Rayon will be 30-40 kilometers from the road.

The maximum freight density of the Akmolinsk-Nurinsk road will reach 150,000 tons, but this freight density cannot be considered as constant. Most of the sovkhozes of Kurgal'dzhinskiy Rayon are closer to the Akmolinsk-Kurgal'dzhino road but they are separated from the road by the Nura River. In the high-water period, connection between the sovkhozes and the Kurgal'dzhino road will be difficult and all freight hauling will be performed over the Akmolinsk-Nurinsk road. At other times most of the freight will be hauled over the Kurgal'dzhino road.

Thus, not considering the temporary factor of the overflowing of the Nura River, the freight turnover of the Akmolinsk-Nurinsk road will be a little over one half (without considering interoblast connections) that of the present time. The construction of the Akmolinsk-Kurgal'dzhino motor road must have priority over construction of the Akmolinsk-Nurinsk motor road.

Construction of the Shchuchinsk-Nikolayevka motor road in Kokchetavskaya Oblast, the Akmolinsk-Kurgal'dzhino road in Akmolinskaya Oblast, and the Petropavlovsk-Krasnoyarsk road in Severo-Kazakhstanskaya Oblast, having a maximum freight density of 100,000 tons, is proposed in order to provide connections

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between Shchuchinskiy, Kurgal'dzhinskiy, and Sokolovskiy rayons with the standard-gauge rail lines. These will be the only well-constructed roads in the above-mentioned rayons.

As a result of the construction of all of the enumerated roads, the transport network of Severo-Kazakhstanskaya, Kokchetavskaya, Akmolinskaya, and Kustanayskaya oblasts by 1957 will be comprised of 3,037 kilometers of motor roads and 1,765 kilometers of rail lines.

The proportion of hauling to be handled by the two main types of transport in the various oblasts is as follows (in percent):

| <u>Oblast</u>          | <u>Volume of Hauling<br/>via Railroads</u> | <u>Volume of Hauling<br/>via Motor Roads</u> |
|------------------------|--------------------------------------------|----------------------------------------------|
| Kustanayskaya          | 71                                         | 29.0                                         |
| Severo-Kazakhstanskaya | 67.5                                       | 32.5                                         |
| Akmolinskaya           | 57.0                                       | 43.0                                         |
| Kokchetavskaya         | 86.8                                       | 13.2                                         |

Considering the heavy strain upon motor transport and the unsatisfactory condition of the motor roads, it is necessary that the section of the Ishim River passing through Severo-Kazakhstanskaya Oblast be utilized for the transport service of the oblast. The organization of navigation on the Ishim River, primarily on the Petropavlovsk-Mar'yevka section, will improve the transportation in five rayons.

Calculations show that the chief type of freight to be hauled on the Ishim River will be grain (up to 120,000 tons) which will be transported down the river, thus accelerating the delivery of freight with a saving in fuel expenditure.

In summer, until the exporting of grain begins, the river may be utilized for hauling construction materials from Oktyabr'skiy Rayon (quarry stone, lime, and gravel) to Petropavlovsk and the rayons adjoining the Ishim River, especially since there are no supplies of stone in the other rayons of Severo-Kazakhstanskaya Oblast and the demand for quarry stone and lime in Petropavlovsk increases every year.

Freight going upstream will consist of fuel for the MTS, kolkhozes, and sovkhozes, industrial freight and foodstuffs, and construction materials.

A trial run over the river from Petropavlovsk to Mar'yevka showed that, if dredging operations were conducted, navigation over the river would be entirely practicable.

The utilization of the river would facilitate the transportation of materials for the construction of the central part of the Kustanay-Peski-Kokchetav rail line and the Petropavlovsk-Mar'yevka motor road.

The developed and extended transported network and the complex utilization of the various types of transport will create normal transport conditions for the future development of Northern Kazakh SSR. This transport network will serve 77 percent of the kolkhozes, 88 percent of the MTS, and 90 percent of the remote procurement points of the total number located within Kustanayskaya, Severo-Kazakhstanskaya, Kokchetavskaya, and Akmolinskaya oblasts.

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